

WHAT IS CLAIMED IS:

1. An optical scanning apparatus comprising:
a laser unit in which a light source and
collimator lens are integrated;

5 an incident optical system for making a light beam
emerging from said laser unit strike an optical
deflector while keeping the light beam wider than a
width of a deflecting surface of the optical deflector
in a main scanning direction; and

10 an imaging optical system for forming the light
beam reflected/deflected by the optical deflector into
an image on a scanned surface,

wherein said laser unit is adapted to be shifted
by shift adjusting means in a predetermined direction
15 with respect to the optical axis of said incident
optical system so as to make an illuminance
distribution of scanning lines on the scanned surface
become substantially symmetrical about a scanning
central axis.

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2. An apparatus according to claim 1, wherein the
"substantially symmetrical" indicates that an
illuminance distribution on the scanned surface falls
within $\pm 5\%$ with respect to the axis in an effective
25 scanning range.

3. An apparatus according to claim 1, wherein the

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predetermined direction is the main scanning direction or/and a sub-scanning direction.

4. An apparatus according to claim 1, wherein the
5 light beam emerging from said laser unit is a
substantially parallel light beam.

5. An apparatus according to claim 1, wherein
when the optical axes of said incident optical system
10 and imaging optical system are projected on a main
scanning cross-section, the optical axes substantially
coincide with each other.

6. An apparatus according to claim 5, wherein the
15 light beam emerging from said incident optical system
is obliquely incident on the deflecting surface of the
optical deflector in a sub-scanning cross-section.

7. An apparatus according to claim 1, wherein the
20 light beam emerging from said incident optical system
is obliquely incident on the deflecting surface of the
optical deflector in a main scanning cross-section.

8. An apparatus according to claim 7, wherein
25 said incident optical system is arranged in a main
scanning cross-section based on the optical deflector.

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9. An apparatus according to claim 1, wherein
said incident optical system comprises a stop
plate, and

5 said laser unit is shifted by said shift adjusting
means in a predetermined direction with respect to the
optical axis of said incident optical system such that
a ratio of intensities of two light beams obtained by
splitting a light beam passing through said stop plate
10 in two in the main scanning direction at a stop center
becomes not more than 10%.

10. An apparatus according to claim 1, wherein a
tilt angle of the light source in the main scanning
direction is set to not more than $\pm 2.5^\circ$ with respect to
15 the optical axis of the collimator lens.

11. An apparatus according to claim 7, wherein
said laser unit is shifted in advance in the main
scanning direction with respect to the optical axis of
20 said incident optical system by an amount corresponding
to an incidence angle at which the light beam emerging
from said incident optical system is obliquely incident
on the deflecting surface of the optical deflector in a
main scanning cross-section.

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12. An image forming apparatus comprising:
said optical scanning apparatus defined in any one

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of claims 1 to 11;

a photosensitive member placed on the scanned surface;

5 a developing unit for developing an electrostatic latent image formed on said photosensitive member by a light beam scanned by said optical scanning apparatus into a toner image;

a transfer unit for transferring the developed toner image onto a transfer medium; and

10 a fixing unit for fixing the transferred toner image on the transfer medium.

13. An image forming apparatus comprising:

15 said optical scanning apparatus defined in any one of claims 1 to 11; and

a controller for converting code data input from an external device into an image signal, and inputting the signal to said optical scanning apparatus.

See Fig 20
20 14. A method of manufacturing an optical scanning apparatus including a laser unit in which a light source and collimator lens are integrated, an incident optical system for making a light beam emerging from the laser unit strike an optical deflector while
25 keeping the light beam wider than a width of a deflecting surface of the optical deflector in a main scanning direction, and an imaging optical system for

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forming the light beam reflected/deflected by the optical deflector into an image on a scanned surface, comprising the step of

5 causing shift adjusting means to shift the laser unit in a predetermined direction with respect to the optical axis of the incident optical system so as to make an illuminance distribution of scanning lines on the scanned surface become substantially symmetrical about a scanning central axis.

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15. A method according to claim 14, wherein the predetermined direction is the main scanning direction or/and a sub-scanning direction.

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16. A method of manufacturing an image forming apparatus by forming the optical scanning apparatus manufactured by the method defined in claim 14, and a controller for converting code data input from an external device into an image signal and inputting the

20 signal to the optical scanning apparatus.

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